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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/666,371	09/20/2000	Davi Geiger	24147.00	6163

21003 7590 05/28/2003

BAKER & BOTTS
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NEW YORK, NY 10112

EXAMINER
ABDULSELAM, ABBAS I

ART UNIT	PAPER NUMBER
2674	11

DATE MAILED: 05/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/666,371	GEIGER ET AL.	
	Examiner	Art Unit	
	Abbas I Abdulselam	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *10* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections 35 U.S.C. 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stytz et al. (USPN 5201035) in view of Blainey et al. (USPN 5797012) and kacyra et al. (USPN 6512993).

Regarding claims 1, 15 and 34-37, Stytz teaches segmentation of a three dimensional image along a plane or planes of interest. Stytz teaches algorithm for volume determination in connection location in which cutting plane takes place. Stytz also teaches a three dimensional array in which voxel values are stored and are described in terms of coordinates. Furthermore, Stytz teaches the use of storage of the display information with sufficient memory which is organized as units. Stytz teaches of node(11i) with their corresponding coordinates (11m) along with voxel value (11n) and voxel coordinates (11o). However, Stytz does not teach a graph structure that demonstrates nodes in terms of edges and the partitioning process. Blainey on the other hand teaches a computer program generating mutigraph having nodes expressed with respect to edges. Blainey also teaches a method of limiting group size in which the totality of node weight procedure in included in the partition. See Fig 3..

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stytz's method of three dimensional data manipulation to include Blainey's computer programing and partitioning technique. One would have been motivated in view of Blainey that the computer programing along with partitioning technique provides the desired configurations of edges with respect to nodes and the partitioning process.. The use of Blainey's's computer programing and the partitioning process helps function a computer program involving data processing system as taught by Blainey.

Stytz has been described above. However, Stytz does not teach nodes that are partitioned into at least two groups by minimum cut algorithm. Kacyra on the other hand teaches an auto segmentation process including an algorithm used to identify the unique groups of non-edge points in the image where each group of connected points is cut from the initial point set to form a new group of points resulting partitioning of the point set into multiple point groups. See col. 37, lines 30-32 and col. 38, lines 9-21.

Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify stytz's method of three dimensional data manipulation to adapt kacyra's point partitioning algorithm. One would have been motivated in view of the suggestion in Kacyra that the point partitioning algorithm is functionally equivalent to the desired minimum cut algorithm. The use of point partitioning algorithm helps function imaging and modeling of three-dimensional objects as taught by Kacyra.

In addition, Kacyra discloses the steps of both manual segmentation process (Fig 20) and auto-segmentation process, which can be used to create a variety of useful fitting tools. Kacyra presents an example in Fig. 20 where intersecting points (2010) are automatically segmented into three subgroups after which a plane fitting algorithm can be used to fit the planes to the points in each group. See col. 24, lines 28-35 and col. 27, lines 40-51.

Kacyra further teaches a CGP module (40) which is a data processing system and a special purpose software controlling and identifying the points in the object (20) that scan. Kacyra also teaches of the object (20) scans. (Fig 1) whose data structures maintain the list of scan fields so that each data point is always associated with a scan field, the scan fields containing data points from the surface of objects to be partitioned. See col. 8, lines 58-67, col. 24, lines 19-27 and Fig 1.

Regarding claims 2 and 8, Stytz teaches a step to determine and confirm the eight image voxel coordinates belonging to the current Oct-tree leaf node have been generated. See col. 17, lines 34-37 and Fig 11a.

Regarding claims 3,10, 20-25 and 16-33 , Stytz teaches the voxel data model representing data elements with array values. See col. 4, lines 35-42.

Regarding claims 4, 9 and 11, Stytz teaches the object space partition in terms of neighborhood of points. See col. 5, lines 54-66.

Regarding claims 5-6 and 12-13, Stytz teaches the application of data array for cube structure. See col. 5,,lines 47-66.

Regarding claims 7, and 14, See Stytz's teaches volume rendering algorithm, See Fig 10(5N) where N stands for dimension.

Regarding claims 38-39, Kacyra teaches partitioning algorithm. See col. 38, lines 9-21.

Regarding claim 40, Kacyra teaches CPG module with the associated software. See Fig 1.

Conclusion

2. The prior art made of record and not relied upon is considered to applicant's disclosure. The following arts are cited for further reference.

U.S. Pat. No. 6,516,277 to Edgecombe et al.

U.S. Pat. No. 6,430,430 to Gosche

3. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulselam** whose telephone number is **(703) 305-8591.** The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709.**

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

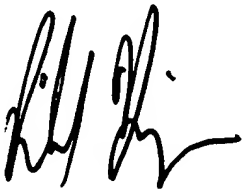
Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to crustal park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.



RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Abbas Abdulselam

Examiner

Art Unit 2674